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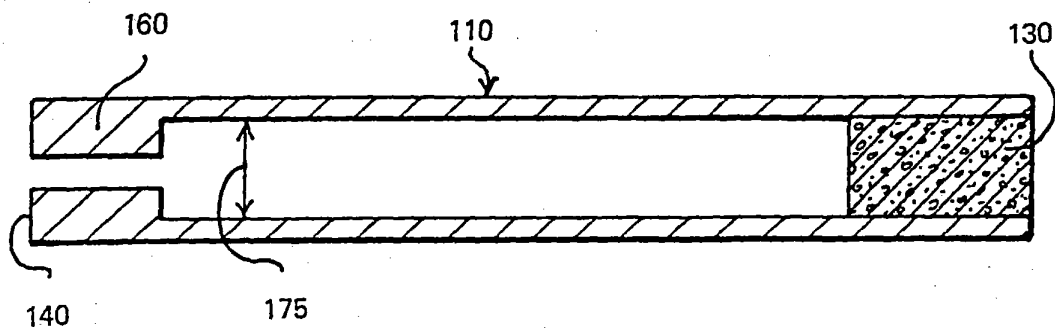


FIG. 2

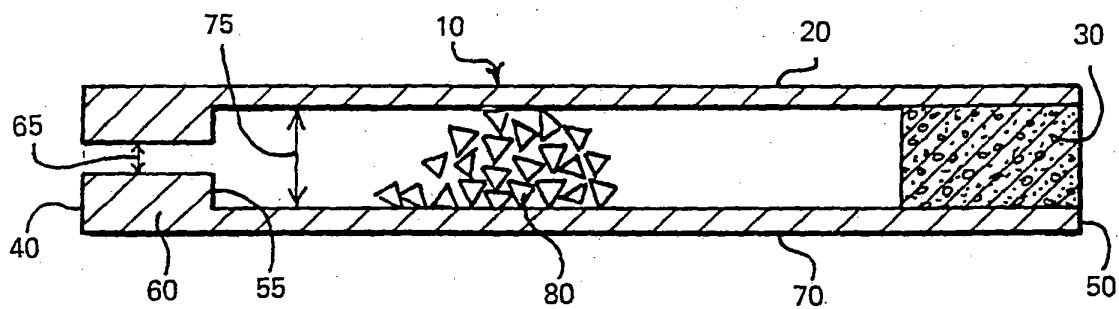


FIG. 1

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DESCRIPTION

SIMULATED SMOKING DEVICES

The present invention relates to simulated smoking devices, for example a simulated cigarette.

In order to give up or cut down on smoking, simulated cigarettes have been devised which have the appearance of ordinary cigarettes but which do not contain tobacco. Such cigarettes are also used by smokers in situations where smoking is not permitted, e.g. in certain restaurants and cinemas.

Typically, a simulated cigarette comprises a cylindrical tube of uniform bore into which is inserted a plug of deformable material at either end. When a user draws air through one end of the cigarette by sucking at that end, a vapour with a pleasant taste and/or a pleasant odour is also drawn through the cigarette. The vapour may be due to partial evaporation of a substance placed between the plugs (e.g. as crystals). Alternatively, the substance may be impregnated into at least one of the plugs.

The plugs are inserted into the devices under compression, and frictional forces ordinarily serve to keep the compressed plug in position. However, occasionally plugs are sucked out of the cylindrical tube into the mouth of a user of the device. This can occur if the plug becomes damaged, perhaps due to

over-compression on insertion or due to wetting by the saliva of a user of the device. It can also occur if the user of the device exerts particularly strong suction on the plug or tampers with the device.

The prior art devices also suffer from the disadvantage that they are time-consuming to manufacture, since for certain devices it is necessary to insert at least two plugs into a tube at pre-determined positions and it may also be necessary to place a substance which gives off a vapour with a pleasant taste and/or smell between the two plugs if the plugs are not impregnated with this substance.

Other simulated cigarettes are known in which a two-part plastic tube is used with one part being in the form of a cigarette holder and the other part being in the form of a simulated cigarette. The two parts are separately moulded and can be joined together by snap-fitting. A plug can then be inserted at the end of the cigarette shaped part, which may contain the substance which gives off a vapour with a pleasant taste and/or odour. Alternatively this substance may be inserted between the cigarette holder shaped part and the plug.

These simulated cigarettes however are expensive to produce since it is necessary for the two parts to be accurately moulded so that they can be fitted

together. furthermore, they are time-consuming to assemble and if parts do not fit together properly, e.g. due to inaccurate moulding, such wastage can result.

According to the present invention there is provided a simulated smoking device comprising a single tube having a distal and proximal end and a chamber located between the distal and proximal ends, a plug inserted in the chamber, and means formed integrally with the tube for restricting displacement of the plug towards the proximal end.

Desirably the means for restricting displacement is located at or adjacent the proximal end of the tube (which end is inserted into a user's mouth when the device is in use) and the plug is located at or adjacent the distal end. The device is desirably provided with a substance which gives off a vapour at room temperature with a pleasant taste and/or a pleasant odour when the device is in use (hereafter referred to as a "volatile substance"). The volatile substance may be located in the chamber (e.g. in crystalline form, liquid form or powder form). Alternatively it may be located in the plug, e.g. by impregnation.

By providing an integral means for restricting displacement of the plug the present invention allows

a simulated smoking device to be assembled much more rapidly than was previously possible since it is now possible to form the device from only two components, a plug and a hollow tube, whilst retaining the appearance of a conventional smoking device, such as a cigarette. Furthermore, the surprisingly simple step of providing the integral plug displacement limiting means allows a simulated smoking device of conventional appearance to be cheaply produced whilst preventing a plug being sucked out of the proximal end of the device by a user of the device.

Preferably the means for restricting displacement comprises a section of the hollow tube of reduced bore. It may comprise an end wall perforated by one or more apertures to allow the passage of air therethrough. Other alternatives are, however, possible, such as the provision of a protruding member or a projection which prevents or reduces the risk of a plug being sucked out of the proximal end of the device.

The hollow tube of the device is desirably formed of non-toxic, rigid plastics material, which is resistant to degradation by saliva. The volatile substance should give off a vapour at room temperature which is non-toxic or which is at least less toxic than the smoke from low-tar cigarettes. The vapour

may have e.g. a tobacco, menthol or mint flavour and/or aroma.

If the volatile substance is in the form of a solid located in the chamber, then desirably the means for restricting displacement should also substantially prevent passage of the solid. This can be achieved by providing means for restricting displacement with one or more apertures which allow passage of air therethrough but which are small enough to substantially prevent the passage of the solid therethrough.

If a device of the present invention is in the form of a simulated cigarette, then desirably it has a length of from 5 to 15 cm (preferably from 6 to 10 cm) and a diameter of between 0.3 cm and 2cm (preferably from 0.5 cm and 1 cm). Preferably the means for restricting the displacement of the plug comprises a single aperture with a diameter of between 0.05 cm and 1 cm (preferably between 0.1 cm and 0.3 cm) and the remainder of the tube desirably has a bore of between 0.2cm and 1cm.

The devices of the present invention are not, however, restricted to simulated cigarettes, but can also, e.g. be in the form of cigars or pipes.

A specific embodiment of the present invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Fig.1 is a longitudinal section through a simulated cigarette according to a first embodiment of the present invention, and

Fig.2 is a longitudinal section through a simulated cigarette according to a second embodiment of the present invention.

Referring now to Fig.1, the simulated cigarette 10 comprises cylindrical tube 20 formed of Prime Food Grade Acrylonitrile Butadiene Styrene Thermoplastic and a plug 30 formed of cellulose acetate. It has a first proximal end 40 which in use is inserted in the mouth of a user (hereinafter referred to as the mouth end) and a second distal end 50 which is remote from the mouth end.

The cylindrical tube 20 comprises a portion of reduced diameter 60, which is at the mouth end 40 and is of narrow bore 65. It also comprises a portion 70 of relatively wide bore 75 defining a chamber. Shoulder 55 defines the boundary between portions 40 and 70. Crystals of menthol 80 are shown placed in bore 75 between the shoulder 55 and the plug 30. This is achieved by placing the crystals 80 in cylindrical tube 20 through end 50. Plug 30 is then inserted at end 50 to keep the crystals 80 in position.

Since conventional filter cigarettes have a brown coloured band close to the mouth end at the position



of the filter, similar colouring can be incorporated adjacent end 40 of simulated cigarette 10.

If it is desired to provide a simulated pipe rather than a cigarette, then this can be achieved simply by providing a flange at end 50 which is in the shape of the bowl of a pipe. If it is desired to produce a cigar shape, then the diameter of tube 20 can simply be widened.

Referring now to Fig.2, simulated cigarette 110 is similar to that shown in Fig.1, except that plug 130 is impregnated with a tobacco flavouring and no crystals are present in bore 175.

A user draws vapour from plug 130 through mouth end 140. Reduced diameter portion 160 prevents plug 130 being drawn through mouth end 140.

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CLAIMS

1. A simulated smoking device comprising a tube having a distal and proximal end and a chamber located between the distal and proximal ends, a plug inserted in the chamber, and means formed integrally with the tube for restricting displacement of the plug towards the proximal end.

2. A simulated smoking device as claimed in claim 1, wherein the means for restricting displacement is located at or adjacent the proximal end of the tube and the plug is located at the distal end.

3. A simulated smoking device as claimed in claim 1 or 2, further comprising a substance which gives off a vapour at room temperature with a pleasant taste and/or a pleasant odour when the device is in use.

4. A simulated smoking device as claimed in claim 3, wherein the substance is located in the chamber in crystalline and/or liquid and/or powder form and/or is impregnated into the plug.

5. A simulated smoking device as claimed in claim 3 or 4, wherein the substance is located in the plug.

6. A simulated device as claimed in claim 3, 4 or 5, wherein the substance comprises a tobacco flavouring.

7. A simulated smoking device as claimed in claim 6, wher in the tobacco flavouring comprises one or more of rectified cade oil, vanillin and monopropylene glycol.

8. A simulated smoking device as claimed in any preceding claim, wherein the means for restricting displacement is a section of the tube of reduced bore.

9. A simulated smoking device as claimed in any preceding claim, wherein the means for restricting displacement is a perforated end wall to the tube which allows the passage of air therethrough.

10. A simulated smoking device as claimed in any preceding claim, in which the tube is a non-toxic, rigid plastics material, which is resistant to degradation by saliva.

11. A simulated smoking device as claimed in any preceding claim, wherein the device is a simulated cigarette of length 5 to 15 cm and diameter of 0.3 to 2 cm and the means for restricting displacement of the plug has a single aperture with a diameter of 0.05 to 1 cm and the remainder of the tube has a bore of 0.2 to 1 cm.

12. A simulated smoking device as claimed in any of the preceding claims, wherein the exterior surface of the proximal end is decorated as a simulated filter tip to indicate the correct end to be inserted into the mouth of a user.

13. A simulated smoking device constructed and adapted to operate substantially as described herein with reference to and as illustrated in the accompanying drawings.

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Category	Identity of document and relevant passage	to claim(s)

### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

## Relevant Technical fields

(i) UK CI (Edition L ) A2C CEC CED CEE

(ii) Int CI (Edition 5 ) A24 F47/00

## Databases (see over)

(i) UK Patent Office

(ii)

Search Examiner

M ELLIOTT

Date of Search

8 JUNE 1993

Documents considered relevant following a search in respect of claims 1-13

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2032244 B J.P. RAY WHOLE DOCUMENT	1 AT LEAST
X	US 4774971 M.J. VIETEN WHOLE DOCUMENT	1 AT LEAST